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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,589	04/12/2001	Franco Preti	SAIC 18.550	9681
26304 7590 .12/22/2006 KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585			EXAMINER ZERVIGON, RUDY	
			ART UNIT 1763	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		12/22/2006	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

09/807,589

Applicant(s)

PRETI ET AL.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-15,19 and 27-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4-15 and 19 is/are allowed.
- 6) ☒ Claim(s) 27-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claim 27-30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pozzetti, V et al. (EP 415191 A). Pozzetti teaches a reaction chamber (Figure 3; column 4; line 43 - column 5, line 16) for an epitaxial reactor comprising: a belljar (62; Figure 3 - "quartz"; column 4; line 43 - column 5, line 16); a susceptor (82; Figure 3,8; column 4; line 43 - column 5, line 16) inside the belljar (62; Figure 3 - "quartz"; column 4; line 43 - column 5, line 16); and a diffuser (74+72+76; Figure 3; column 5; lines 38-46) disposed on the top of the belljar (62; Figure 3 - "quartz"; column 4; line 43 - column 5, line 16); the belljar (62; Figure 3 - "quartz"; column 4; line 43 - column 5, line 16) being made of insulating and transparent material ("quartz"; column 4; line 43 - column 5, line 16) and having an upper flange (top portion of 70; Figure 3), the flange (top portion of 70; Figure 3) joined to a neck (70; Figure 3), the neck (70; Figure 3) joined to a flat zone (top portion of 62; Figure 3), the flat zone (top portion of 62; Figure 3) joined to a shoulder (shoulder portion of 62; Figure 3), and the shoulder (shoulder portion of 62; Figure 3) joined to a cylindrical zone; the susceptor (82; Figure 3,8; column 4; line 43 - column 5, line 16) comprising a body shaped like a truncated pyramid (column 7, line 30), the susceptor (82; Figure 3,8; column 4; line 43 - column 5, line 16) being provided with disk-shaped cavities (96a,b,...; Figure 3; column 8) for receiving wafers (98a1,a2,...; Figure 3; column 8) of material to be treated, and supporting an insulating and chemically resistant flat plate (top portion of 82; Figure 3; column 8) above it, the flat plate (top portion of 82; Figure 3; column 8) facing the flat zone (top portion

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of 62; Figure 3) of the belljar (62; Figure 3 - “quartz”; column 4; line 43 - column 5, line 16); the diffuser (74+72+76; Figure 3; column 5; lines 38-46) being formed by a cap (72; Figure 3; column 5; lines 38-46) supplied by a central dome-piece connected to a symmetrical annular distribution chamber having a plurality of pipes (74, 76; Figure 3; column 5; lines 38-46) which connect the annular chamber of the cap (72; Figure 3; column 5; lines 38-46) to a dome zone of the belljar situated just underneath its neck (70; Figure 3), the plurality of pipes (74, 76; Figure 3; column 5; lines 38-46) feeding gases into the belljar (62; Figure 3 - “quartz”; column 4; line 43 - column 5, line 16) and ensuring a uniform distribution of gas flow at a lower speed – claim 27. With respect to Applicant’s claim requirement of “and ensuring a uniform distribution of gas flow at a lower speed”, when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

Pozzetti further teaches wherein the internal diameter of the cylindrical zone of the belljar is sized to keep the belljar (62; Figure 3 - “quartz”; column 4; line 43 - column 5, line 16) at a distance from the susceptor (82; Figure 3,8; column 4; line 43 - column 5, line 16); and wherein the flat plate (top portion of 82; Figure 3; column 8) is arranged to deflect gases coming from a vertical direction from the plurality of pipes (74, 76; Figure 3; column 5; lines 38-46) and to guide the gases into a horizontal direction between the flat plate (top portion of 82; Figure 3; column 8) and the flat zone (top portion of 62; Figure 3) until the end of the flat plate (top portion of 82; Figure 3; column 8) where the gases flow vertically downward to the susceptor (82; Figure 3,8; column 4; line 43 - column 5, line 16) for improved deposition wherein a plurality of baffles (147x; Figure 8) are fixed to the susceptor and the baffles (147x; Figure 8) are

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made of material chemically inert with respect to the gases used in the said chamber – claim 27. Applicant's claim requirements of "are made of material chemically inert with respect to the gases used in the said chamber" is a claim requirement of intended use. In particular, the use of the reactor with the specific "gases used in said chamber". What if nitrogen gas is used during processing? All materials are "chemically inert" to nitrogen. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

Pozzetti does not teach that Pozzetti's plurality of pipes (74, 76; Figure 3; column 5; lines 38-46) are of the same length.

Pozzetti further does not teach:

- i. The improved reaction chamber (Figure 3; column 4; line 43 - column 5, line 16) for an epitaxial reactor of Claim 27 wherein the baffles (147x; Figure 8) fixed to the susceptor (82; Figure 3,8; column 4; line 43 - column 5, line 16) are made of glass, as claimed by claim 28
- ii. The improved reaction chamber (Figure 3; column 4; line 43 - column 5, line 16) for an epitaxial reactor of Claim 27 wherein the baffles (147x; Figure 8) fixed to the susceptor

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(82; Figure 3,8; column 4; line 43 - column 5, line 16) are made of ceramic material, as claimed by claim 29

- iii. The improved reaction chamber (Figure 3; column 4; line 43 - column 5, line 16) for an epitaxial reactor of Claim 27 wherein the baffles (147x; Figure 8) fixed to the susceptor (82; Figure 3,8; column 4; line 43 - column 5, line 16) are made of quartz, , as claimed by claim 30

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the dimension(s) of Pozzetti's apparatus including fabricating Pozzetti's baffles (147x; Figure 8) from ceramic quartz.

Motivation to optimize the dimension(s) of Pozzetti's apparatus including fabricating Pozzetti's baffles (147x; Figure 8) from ceramic quartz is for ensuring flow rate uniformity as taught by Pozzetti (column 2; lines 30-38), and for ensuring chemical inertness during processing as taught by Pozzetti (column 4; line 43 - column 5, line 16) respectively. It is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04).

3. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pozzetti, V et al. (EP 415191 A) in view of Hammond; Martin L. et al. (US 4694779 A). Pozzetti is discussed above. Pozzetti does not teach the baffles (147x; Figure 8) fixed to the susceptor are made of graphite lined with silicon carbide. Hammond teaches belljar reactor (Figure 2a,c) for wafer

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processing including silicon carbide coated graphite reactor materials (column 7, line 67 – column 8, line 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Pozzetti to use silicon carbide coated graphite reactor materials as taught by Hammond.

Motivation for Pozzetti to use silicon carbide coated graphite reactor materials as taught by Hammond is for favorable thermal characteristics as taught by Hammond (column 7; lines 50-68).

#### *Allowable Subject Matter*

4. Claims 1, 4-15, and 19 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter: Applicant's claim 1 (from 6 lines from the bottom to end) and claim 19 (from 6 lines from the bottom to end) require specific structural elements not taught or suggested in the prior art.

#### *Conclusion*

6. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.



12/19/06